

**Translation**

**PATENT COOPERATION TREATY**

PCT/JP2003/015835



**PCT**

**INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**  
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 664200	<b>FOR FURTHER ACTION</b> See Form PCT/IPEA/416	
International application No. PCT/JP2003/015835	International filing date (day/month/year) 11 December 2003 (11.12.2003)	Priority date (day/month/year) 11 December 2002 (11.12.2002)
International Patent Classification (IPC) or national classification and IPC C12N 15/09, C12P 21/02		
Applicant TAKARA BIO INC.		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 5 sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising:
  - a. ☐ (sent to the applicant and to the International Bureau) a total of \_\_\_\_\_ sheets, as follows:
    - ☐ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
    - ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
  - b. ☒ (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) Disc 1, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).
4. This report contains indications relating to the following items:
  - ☒ Box No. I Basis of the report
  - ☐ Box No. II Priority
  - ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
  - ☐ Box No. IV Lack of unity of invention
  - ☒ Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
  - ☐ Box No. VI Certain documents cited
  - ☐ Box No. VII Certain defects in the international application
  - ☐ Box No. VIII Certain observations on the international application

Date of submission of the demand 08 June 2004 (08.06.2004)	Date of completion of this report 04 October 2004 (04.10.2004)
Name and mailing address of the IPEA/JP	Authorized officer
Facsimile No.	Telephone No.

# INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/JP2003/015835

## Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This report is based on translations from the original language into the following language \_\_\_\_\_, which is language of a translation furnished for the purpose of:

- ☐ international search (under Rules 12.3 and 23.1(b))
- ☐ publication of the international application (under Rule 12.4)
- ☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

☒ The international application as originally filed/furnished

☐ the description:

pages \_\_\_\_\_, as originally filed/furnished

pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

☐ the claims:

pages \_\_\_\_\_, as originally filed/furnished

pages\* \_\_\_\_\_, as amended (together with any statement) under Article 19

pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

☐ the drawings:

pages \_\_\_\_\_, as originally filed/furnished

pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

☒ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

☐ the description, pages \_\_\_\_\_

☐ the claims, Nos. \_\_\_\_\_

☐ the drawings, sheets/figs \_\_\_\_\_

☐ the sequence listing (*specify*): \_\_\_\_\_

☐ any table(s) related to sequence listing (*specify*): \_\_\_\_\_

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

☐ the description, pages \_\_\_\_\_

☐ the claims, Nos. \_\_\_\_\_

☐ the drawings, sheets/figs \_\_\_\_\_

☐ the sequence listing (*specify*): \_\_\_\_\_

☐ any table(s) related to sequence listing (*specify*): \_\_\_\_\_

\* If item 4 applies, some or all of those sheets may be marked "superseded."

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/JP03/15835

**Box No. V** Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

## 1. Statement

Novelty (N)	Claims	5, 7	YES
	Claims	1-4, 6, 8-10	NO
Inventive step (IS)	Claims		YES
	Claims	1-10	NO
Industrial applicability (IA)	Claims	1-10	YES
	Claims		NO

## 2. Citations and explanations (Rule 70.7)

## Document 1

YAMANAKA, K. et al., Mutation analysis of the 5' untranslated region of the cold shock cspA mRNA of Escherichia coli.

J Bacteriol. (1999) Vol. 181, No. 20, p. 6284-6291

## Document 2

WO 99/27117 A1 (Takara Shuzo Kabushiki Kaisha) June 3, 1999, Entire document

Based on the description in document 1 cited in the international search report, the inventions of claims 1-4, 6, and 8-10 lack novelty.

Document 1 describes a vector having a region that encodes the 5' untranslated region of the cold shock protein genetic mRNA, and it describes analysis of the promoter site by partial deletions of the 5' untranslated region to alter the stem structure and express the protein.

In addition, it describes a vector in which the region containing base numbers 593-598 of SEQ ID NO: 1 of this application is missing (especially, see page 6289).

Based on the descriptions in documents 1 and 2 cited in the international search report, the invention of claim 5 lacks an inventive step.

Document 1 does not describe a vector having a region that encodes the 5' terminal region of the base sequences represented by either of SEQ ID NOS: 2, 3, or 4 of the present application, but this examination finds that based on the invention described in document 1, persons skilled in the art can introduce as needed a mutation at a suitable site and obtain a vector that shows higher

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## Supplemental Box Relating to Sequence Listing

## Continuation of Box No. 1, item 2:

1. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this report was established on the basis that of:
- a. type of material
- ☒ a sequence listing
- ☐ table(s) related to the sequence listing
- b. format of material
- ☐ in written format
- ☒ in computer readable form
- c. time of filing/furnishing
- ☐ contained in the international application as filed
- ☒ filed together with the international application in computer readable form
- ☐ furnished subsequently to this Authority for the purpose of search and/or examination
- ☐ received by this Authority as an amendment\* on \_\_\_\_\_
2. ☒ In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
3. Additional comments:

*\* If item 4 in Box No. 1 applies, the listing and/or table(s) related thereto, which form part of the basis of the report, may be marked "superseded".*

## Supplemental Box

In case the space in any of the preceding boxes is not sufficient.  
Continuation of Box V:

Based on the descriptions in documents 1 and 2 cited in the international search report, the invention of claim 7 lacks an inventive step.

Document 2 describes a vector having a region that encodes the 5' untranslated region of the cold shock protein genetic mRNA. It also describes construction of a vector having a base sequence that is complementary to the ribosomal RNA anti-downstream box sequence of *E. coli*, the host that is used, downstream from the region that encodes the 5' untranslated region, and it states that this vector demonstrates a higher expression efficiency at cold temperatures than a vector having only the region that encodes the 5' untranslated region from cold shock protein genetic mRNA (see pages 45 to 48).

Because the inventions described in documents 1 and 2 both concern a method for expressing a protein at cold temperatures using a vector having a region that encodes the 5' untranslated region from cold shock protein genetic mRNA, this examination finds that based on the description in document 2, persons skilled in the art can easily conceive of constructing a vector having a base sequence that is complementary to the ribosomal RNA anti-downstream box sequence of *E. coli*, the host that is used, for the purpose of increasing expression efficiency at cold temperatures in the invention described in document 1.